

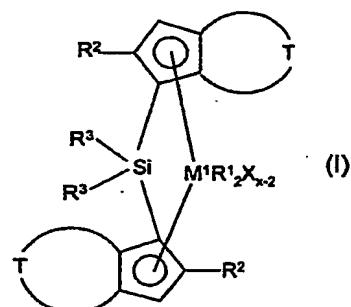
Rumipurift

We claim:

1. A process for the racemoselective preparation of silicon-bridged dialkylansa-metallocenes of the formula (I)

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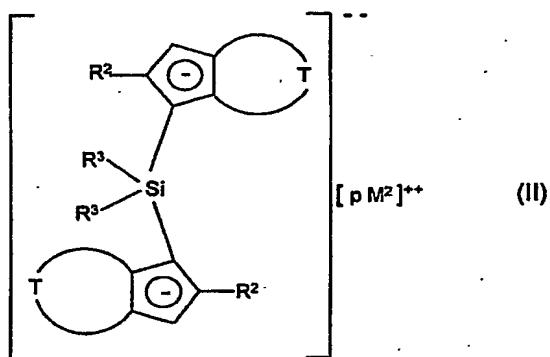


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which comprises reacting a ligand starting compound of the formula (II)

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with a transition metal dialkyl compound of the formula (III)



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where

M^1 is an element of group 4, 5 or 6 of the Periodic Table of the Elements,

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R^1 are identical C_1-C_{20} -alkyl or C_7-C_{40} -arylalkyl radicals,

X are identical or different halogens,

R^2 are identical or different C_1-C_{40} radicals,

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R³ are identical or different C₁-C₄₀ radicals,

T 5 is a divalent C₁-C₄₀ group which together with the cyclopentadienyl ring forms a further saturated or unsaturated ring system which has a ring size of from 5 to 12 atoms, where T may contain the heteroatoms Si, Ge, N, P, O or S in the ring system fused onto the cyclopentadienyl ring,

M² 10 is Li, Na, K, MgCl, MgBr, MgI, Mg or Ca,

D 15 is an uncharged Lewis base ligand,

x 20 is equal to the oxidation number of M¹ minus 2,

y 15 is from 0 to 2

and

p 25 is 1 in the case of doubly positively charged metal ions or 2 in the case of singly positively charged metal ions or metal ion fragments,

wherein the racemoselectivity = (proportion of rac - proportion of meso)/(proportion of rac + proportion of meso) is greater than zero.

25 2. A process as claimed in claim 1, wherein

T 30 is a 1,3-butadiene-1,4-diyl group which may be unsubstituted or be substituted by from 1 to 4 radicals R⁴, where the two 1,3-butadiene-1,4-diyl groups may be different,

R⁴ 35 are identical or different C₁-C₂₀ radicals,

M¹ 40 is titanium, zirconium or hafnium,

R¹ 45 are identical C₁-C₅-alkyl or C₇-C₂₀-arylalkyl radicals,

X 40 is halogen and

R^2 , R^3 , M^2 , D , p , x and y are as defined in claim 1.

3. A process as claimed in claim 1 or 2, wherein the transition metal dialkyl compound of the formula (III) is produced at above -30°C by combining a compound M^1X_{x+2} with from 2 to 5 equivalents of a compound R^1M^3 in the presence of a ligand compound D, where
- 10 M^3 is Li^+ , Na^+ , K^+ , $MgCl^+$, $MgBr^+$, Mgl^+ , $\frac{1}{2} [Mg^{++}]$ or $\frac{1}{2} [Zn^{++}]$, and the other variables are as defined in claim 1 or 2.
- 15 4. A process as claimed in claim 1 or 2, wherein the ligand starting compound of the formula (II) or (V) is combined with the transition metal dialkyl compound of the formula (III) at above -30°C.
5. A process as claimed in claim 4, wherein the reaction mixture is maintained at from 30°C to 150°C for a period of at least 10 minutes after the reaction components have been combined.
- 20 6. A process as claimed in any of claims 1 to 5, wherein the reaction is carried out in an organic solvent or solvent mixture which comprises at least 10% by volume of an ether.
7. The use of a transition metal dialkyl compound of the formula (III) for the racemoselective preparation of silicon-bridged dialkylansa-metallocenes of the formula (I).

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